

C L A I M S

1. A failure detecting device characterized
2 by comprising:

3 notification receiving means for receiving,
4 from at least one communication terminal of a
5 communication partner, notification of both reception
6 power of a signal transmitted from a main apparatus and
7 transmission power of a signal transmitted to said main
8 apparatus;

9 determining means for determining the
10 reception power from said communication terminal and the
11 transmission power to said communication terminal;

12 propagation loss calculating means for
13 calculating bidirectional propagation losses between
14 said communication terminal and main apparatus, from the
15 two powers output from said notification receiving means
16 and the two powers output from said determining means;

17 difference checking means for checking whether
18 a difference between the propagation losses falls within
19 a predetermined allowable range; and

20 failure determining means for determining that
21 a transmitter/receiver of at least one of said
22 communication terminal and main apparatus has a failure,
23 if said difference checking means determines that the
24 difference falls outside the allowable range.

2. A failure detecting device according to
2 claim 1, characterized by further comprising a plurality

3 of communication terminals,

4 wherein said notification receiving means
5 receives, from each of said plurality of communication
6 terminals of a communication partner, notification of
7 both reception power of a signal transmitted from said
8 main apparatus and transmission power of a signal
9 transmitted to said main apparatus,

10 said determining means determines, for each
11 communication terminal, the reception powers from said
12 plurality of communication terminals and the
13 transmission powers to said plurality of communication
14 terminals,

15 said propagation loss calculating means
16 calculates bidirectional propagation losses between each
17 communication terminal and said main apparatus, from the
18 two powers output from said notification receiving means
19 and the two powers output from said determining means,

20 said difference checking means checks whether
21 a difference between the propagation losses falls within
22 a predetermined allowable range, and

23 said failure determining means determines that
24 a transmitter/receiver of at least one of said
25 communication terminal and main apparatus has a failure,
26 if said difference checking means determines that the
27 difference falls outside the allowable range.

3. A failure detecting device according to
2 claim 2, characterized in that if said difference

3 checking means determines that the difference falls
4 outside the allowable range for all of said plurality of
5 communication terminals, said failure determining means
6 determines that a transmitter/receiver of said main
7 apparatus has a failure.

4. A failure detecting device according to
2 claim 2, characterized in that if said difference
3 checking means determines that the difference falls
4 outside the allowable range for some of said plurality
5 of communication terminals, said failure determining
6 means determines that a transmitter/receiver of each of
7 said communication terminals, which is found to fall
8 outside the allowable range has a failure.

5. (amended) A failure detecting device
2 according to claim 3, characterized in that if it is
3 determined that a propagation loss of a propagation path
4 to said main apparatus is smaller than a propagation
5 loss of a propagation path to each communication
6 terminal, said failure determining means determines that
7 a transmitter of said main apparatus has failed, and,
8 otherwise, said failure determining means determines
9 that a receiver of said main apparatus has failed.

6. (amended) A failure detecting device
2 according to claim 4, characterized in that if it is
3 determined that a propagation loss of a propagation path
4 to said main apparatus is smaller than a propagation
5 loss of a propagation path to each communication

6 terminal, said failure determining means determines that
7 a receiver of a communication terminal found to fall
8 outside the allowable range has failed, and, otherwise,
9 said failure determining means determines that a
10 transmitter of a communication terminal found to fall
11 outside the allowable range has failed.

7. A failure detecting device according to
2 claim 1, characterized in that if it is determined that
3 a propagation loss of a propagation path to said main
4 apparatus is equal to a propagation loss of a
5 propagation path to each communication terminal, said
6 failure determining means determines that said
7 communication terminal and main apparatus are normal.

8. A failure detecting device according to
2 claim 1, characterized by further comprising failure
3 notifying means for notifying said communication
4 terminal of a detected failure.